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PROVISIONAL SPECIFICATION.

Improvements in Crutches.

We, THOMAS CHATFIELD, and FREDERICK DUROSE, both of 34 Warser Gate, in the Town and County of the Town of Nottingham, Watchmakers, do hereby declare the nature of this invention to be as follows:—

This invention relates to improvements in crutches, and comprises a pneumatic
5 or air-cushion for the crutch head, and also means for preventing slipping.

According to our invention we arrange, in a suitably shaped groove or recess, in the crutch head, a cylindrical bag or cushion of india-rubber, or other appropriate material, which, by means of a suitably arranged valve, may be inflated with air to
10 any desired degree of hardness, in any well known manner. We are thus enabled to dispense with the padding or spring devices now used for obtaining elasticity or softness, and which are liable to become hot and cause arm sores, and the like.

The cylindrical bag or pneumatic cushion is preferably made deeper in the middle than at the ends, and slightly tapering and rounded at the ends, so that when the crutch head is completed by a covering of leather, or the like, it shall
15 present nearly the same appearance as an ordinary crutch head.

At the bottom of the crutch, we arrange a scored or roughened ferrule which may be advantageously formed of a block of vulcanized india rubber, or other hard resilient material such as leather, in which ridges or projections are formed in any suitable manner so as to prevent the slipping of the crutch.

20 The india rubber or leather ferrule may be so arranged that an air space or cushion is formed between the end of the crutch stick and the bottom of the ferrule, by which arrangement the wear of the ferrule is considerably lessened.

A further advantage of our crutch is that there is less jar or vibration, particularly in ascending or descending steps, or stairs, than with crutches as
25 hitherto constructed.

Dated this 27th day of November 1895.

ERNEST DE PASS,
Chartered Patent Agent,
78, Fleet Street, London, and 5^A, Market Street, Nottingham,
Agent for the Applicants.

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COMPLETE SPECIFICATION.

Improvements in Crutches.

We, THOMAS CHATFIELD and FREDERICK DUROSE, both of 34 Warser Gate, in the Town and County of the Town of Nottingham, Watchmakers, do hereby
35 declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement, reference being had to the accompanying drawings and to the letters and figures marked thereon, that is to say:—

This invention relates to improvements in crutches, and comprises a pneumatic
40 or air cushion for the crutch head, and also means for preventing slipping.

[Price 8d.]

Chatfield and Durose's Improvements in Crutches.

According to our invention, we arrange, in a suitably shaped groove or recess in the crutch head or top, a cylindrical bag or cushion of india rubber, or other appropriate material, which by means of a suitable valve, may be inflated with air to any desired degree of hardness, in any well known manner.

The crutch head is rounded at the ends, in consequence of the ends of the cylindrical air cushion being rounded, and is hollowed out, or has a depression in the middle, to fit the arm and prevent the crutch slipping backwards, or forwards; padding and like devices being thus dispensed with.

At the bottom of the crutch, we arrange a scored or roughened ferrule, which may be advantageously formed of a block of vulcanized india rubber, or other hard resilient material, such as leather, in which an air space or cushion is formed between the end of the crutch stick and the bottom of the ferrule, to lessen the wear of the ferrule.

Our invention will be readily understood by reference to the annexed drawings in which:—

Fig. 1 is a side view of a crutch constructed according to our invention.

Fig. 2 is a top view or plan of same, to a larger scale.

Fig. 3 is a section of the crutch head.

Fig. 4 is a side view of the cylindrical air cushion, before being placed in the wooden top and inflated.

Fig. 5 is a transverse section of the crutch head; and

Fig. 6 is a section of the ferrule.

a is the wooden head or top which is hollowed out on its upper edge to receive the cylindrical air cushion *b*, and maintain it in position so that it cannot roll endways or laterally, and also to compel the said air cushion, when inflated, to be curved to the desired extent to prevent the arm slipping backwards or forwards. When the cushion is placed in the groove of the wooden top, its valve nipple *c* is passed through a short flanged tube *d*, screwed to the wooden top, and is secured therein by suitable means, such as a set screw *e*. The inflating valve *f* is inserted from below, and may be of the same construction and operated in the same way as are the valves for inflating pneumatic tyres of cycles.

The head or top *a*, and the cylindrical air cushion *b*, are both enclosed by a covering *g* of leather, which is stitched, cemented, or tacked to the said head or top, and is made in halves suitably fastened together, preferably by stitching longitudinally as indicated by the dotted line *h* (Fig. 2). Cloth, indiarubber, prepared canvas, or other suitable material may, however, be employed for the covering *g*, instead of leather.

The ends *i* of the wooden head or top are rounded, so as not to injure the air cushion, or leather covering, and it will be seen from the drawing that they are so shaped that the inflated cylindrical air cushion completely covers them and prevents the possibility of their chafing the arms, or the weight of the body falling upon them.

Secured to the end of the crutch stick, is a stop or flanged ring *j*, against which the upper edge of the ferrule *k* abuts. An air space *l* is left between the end of the crutch stick *m* and the bottom of the ferrule, and causes the pressure put upon the crutch stick to be distributed over the side walls of the ferrule instead of directly on the bottom, as in ferrules heretofore constructed.

The bottom of the ferrule is scored, as at *n*, to prevent slipping or skidding.

Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to be performed, we declare that what we claim is:—

1. In a crutch having a pneumatic cushion, a hollowed out wooden head or top to cause the cushion (provided with rounded ends) to present a depression in the middle to fit the arm and prevent slipping of the crutch, substantially as described.
2. In a crutch, the employment of an elastic ferrule at the end of the crutch

Chatfield and Durose's Improvements in Crutches.

stick, said ferrule abutting against a stop fixed at or near the end of the crutch stick, so as to maintain an air space between the end of the crutch stick and the bottom of the ferrule, substantially as and for the purpose described.

3. In a crutch, the combination of a hollowed out head or top, an air cushion fitted in such head, and an elastic ferrule at the lower end of the crutch stick, inside of which ferrule is an air space, substantially as and for the purposes described.

4. Our improvements in crutches substantially as hereinbefore described and as shown by the annexed drawings.

10 Dated this 27th day of August 1896.

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[This Drawing is a reproduction of the Original on a reduced scale]



Fig. 1.

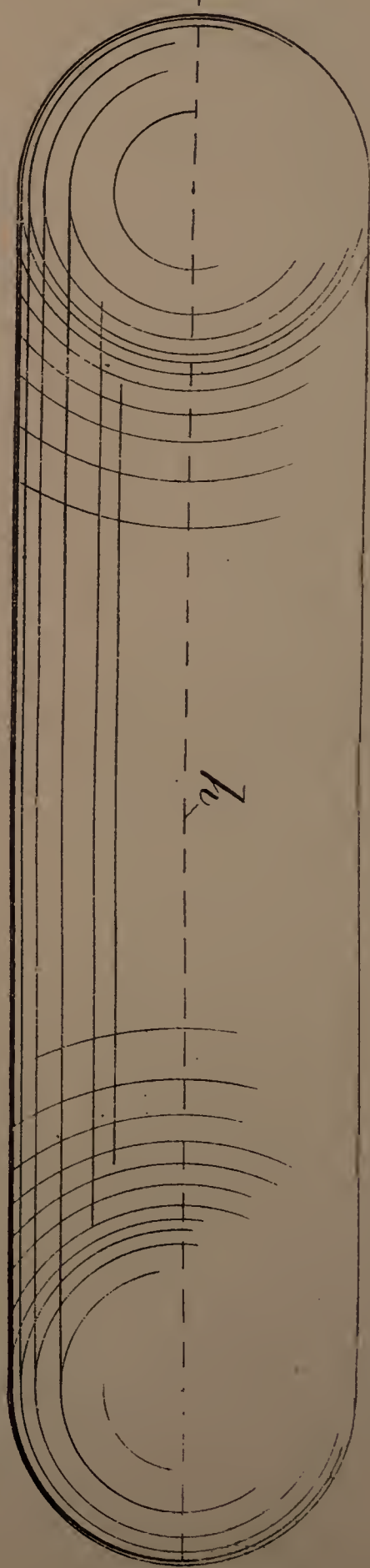


Fig. 2.

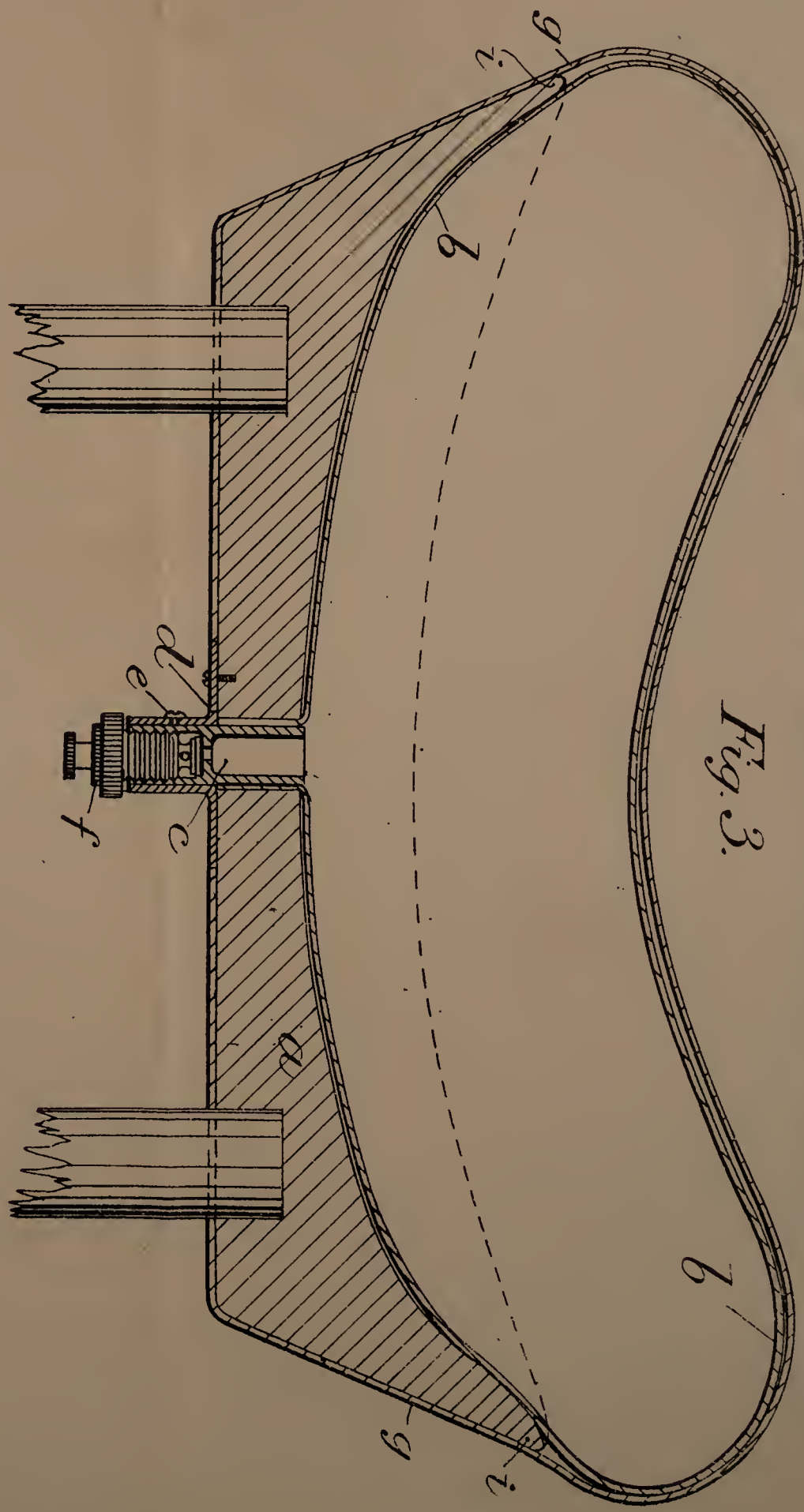


Fig. 3.

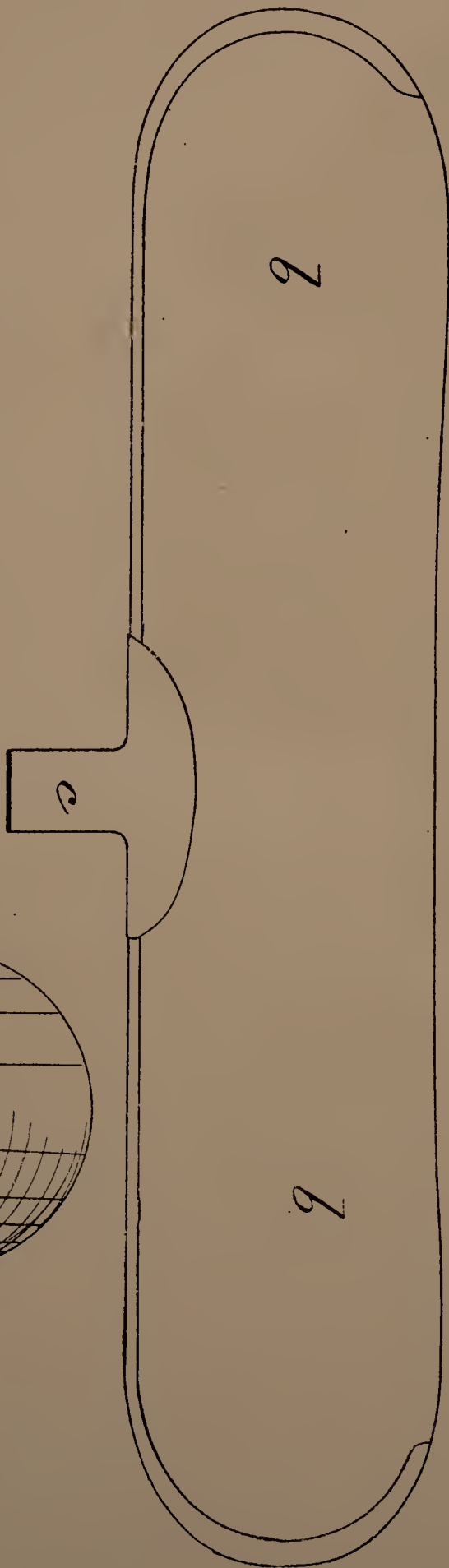


Fig. 4.

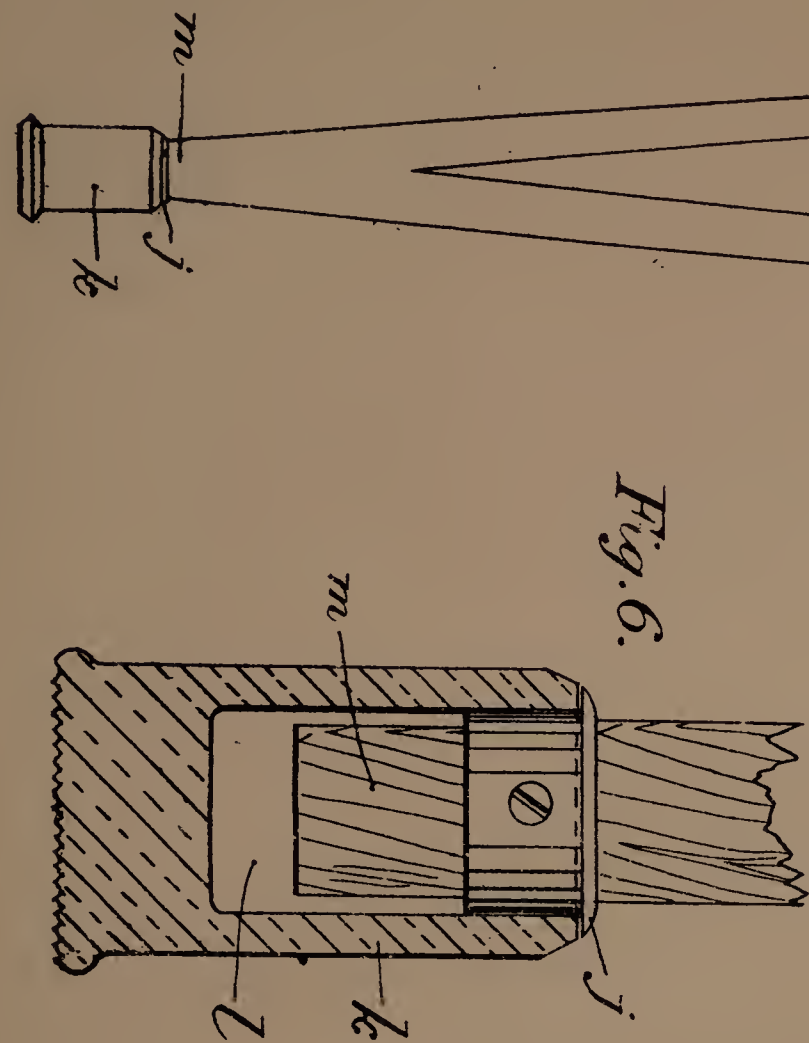


Fig. 5.

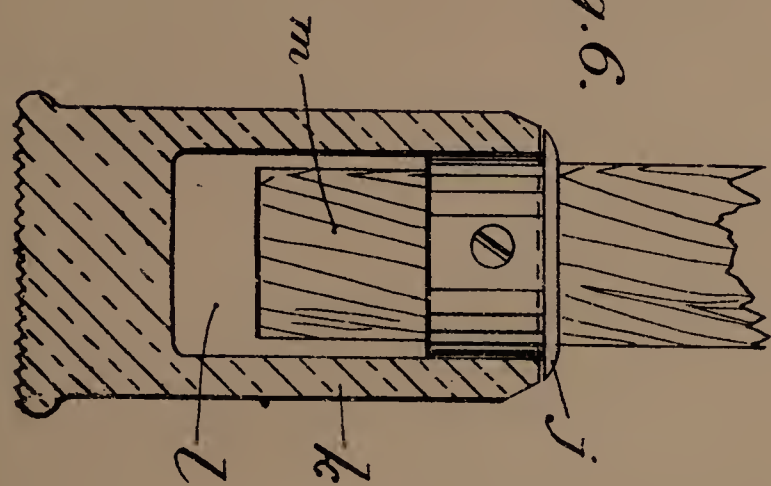


Fig. 6.

